Item 29: Fish Habitat (water temperature)

Evaluation Objectives: Monitor stream temperature to determine if it meets the habitat requirements of bull trout and westslope cutthroat trout.

Methods: Between 2002 and 2007, summer water temperatures have been monitored in reference and managed streams by the PIBO (PACFISH/INFISH Biological Opinion) monitoring program. More data is needed to reduce the variability from year to year so that comparisons between reference and managed sites can be made.

Evaluation: INFISH contains interim objectives to allow no measurable increase in maximum water temperature (7 day moving average). Maximum water temperatures should be below 15º C in adult holding habitat and below 8.8 º C in spawning and rearing habitats. This direction applies to all inland native fish habitat. Bull trout are very sensitive to temperature and are particularly intolerant of temperatures above 15º C (Fraley and Shepard 1989). Since the establishment of INFISH, there has been concern about the applicability of the temperature values. In other words, some streams may not be capable of maintaining temperatures below 15º C, particularly during low flows and warm weather.

Maintenance of cold water is likely to be a challenge in the long term future as the climate warms. Water temperatures are likely to increase as air temperature increases, but also because of changing hydrologic regimes. Decreases in snow pack throughout the pacific northwest have been well documented (Mote 2003, Mote et al. 2003). In addition, spring snowmelt is occurring earlier in the year across the west (Stewart et al. 2004). The potential combination of less snow pack and earlier spring snowmelt is likely to cause lower summer flows, which would also contribute to higher water temperatures.

Recommended Actions: Continue to monitor stream temperature through the PIBO program, and report this information in the next forest plan monitoring report. At that time, there should be a sufficient amount of data to make reasonable comparisons between reference and managed sites. In addition, it is recommended that stream temperature be monitored at key locations to detect possible climate-driven changes and potential impacts on native fish.